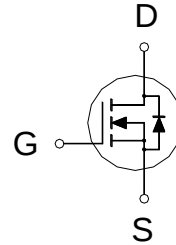


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	25m Ω	6.3A

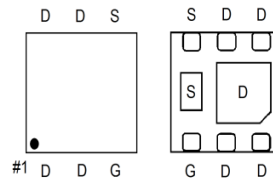


Features

- Pb-Free, Halogen Free and RoHS compliant.
- Low $R_{DS(on)}$ to Minimize Conduction Losses.
- Ohmic Region Good $R_{DS(on)}$ Ratio.
- Optimized Gate Charge to Minimize Switching Losses.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.



G. GATE
D. DRAIN
S. SOURCE

100% UIS Tested
100% Rg Tested

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	V
Pulsed Drain Current ¹		I_{DM}	24	A
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	6.3	
	$T_A = 70\text{ }^{\circ}\text{C}$		5.1	
Avalanche Current		I_{AS}	14	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	9.8	mJ
Power Dissipation ³	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.1	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.3	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$t \leq 10s$	$R_{\theta JA}$		60	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		80	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

³The Power dissipation is based on $R_{\theta JA}$ $t \leq 10s$ value.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL		TEST CONDITIONS	LIMITS			UNIT
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}		V _{GS} = 0V, I _D = 250μA	40			V
Gate Threshold Voltage	V _{GS(th)}		V _{DS} = V _{GS} , I _D = 250μA	1.3	1.7	3	
Gate-Body Leakage	I _{GSS}		V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}		V _{DS} = 40V, V _{GS} = 0V			1	μA
			V _{DS} = 40V, V _{GS} = 0V, T _J = 55 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}		V _{GS} = 4.5V, I _D = 6.3A		21	35	mΩ
			V _{GS} = 10V, I _D = 6.3A		18	25	
Forward Transconductance ¹	g _{fs}		V _{DS} = 5V, I _D = 6.3A		37		S
DYNAMIC							
Input Capacitance	C _{iss}		V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		411		pF
Output Capacitance	C _{oss}				69		
Reverse Transfer Capacitance	C _{rss}				43		
Gate Resistance	R _g		V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		4.4		Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 20V , V _{GS} = 10V, I _D = 6.3A		9.5		nC
		V _{GS} = 4.5V			4.6		
Gate-Source Charge ²	Q _{gs}				1.7		
Gate-Drain Charge ²	Q _{gd}				2.2		
Turn-On Delay Time ²	t _{d(on)}		V _{DS} = 20V , I _D ≅ 6.3A, V _{GS} = 10V, R _{GEN} =6Ω		5.5		nS
Rise Time ²	t _r				67		
Turn-Off Delay Time ²	t _{d(off)}				18		
Fall Time ²	t _f				102		

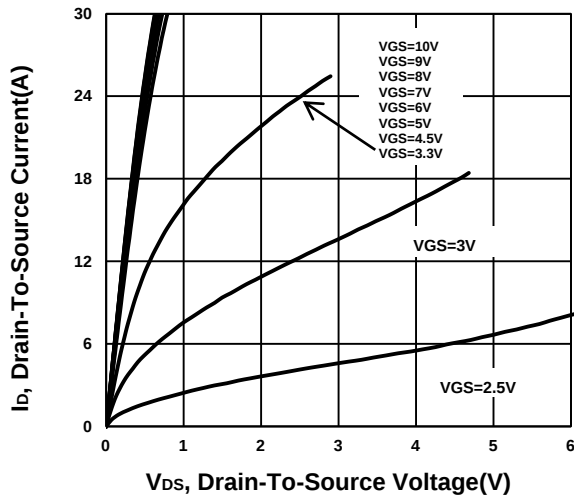
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$)

Continuous Current	I_S				1.6	A
Forward Voltage	V_{SD}	$I_F = 6.3\text{A}$, $V_{GS} = 0\text{V}$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 6.3\text{A}$, $di_F/dt = 100\text{A} / \mu\text{S}$		5.2		nS
Reverse Recovery Charge	Q_{rr}			1.7		nC

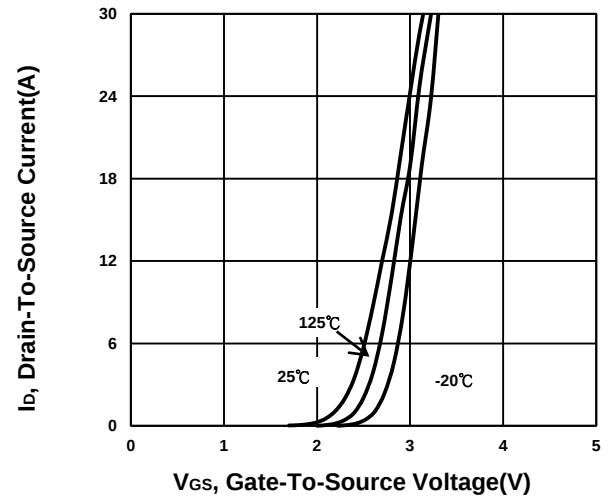
¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

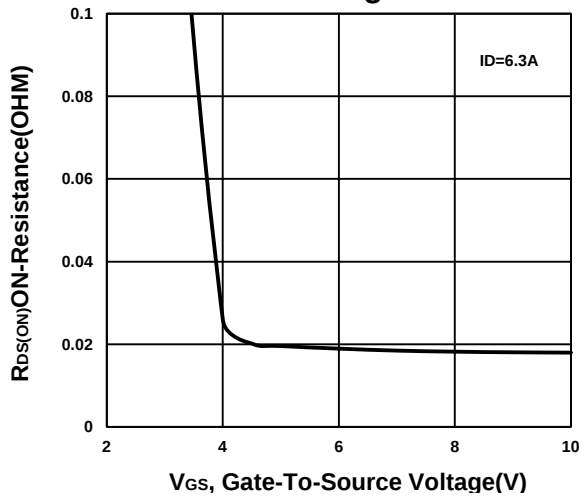
Output Characteristics



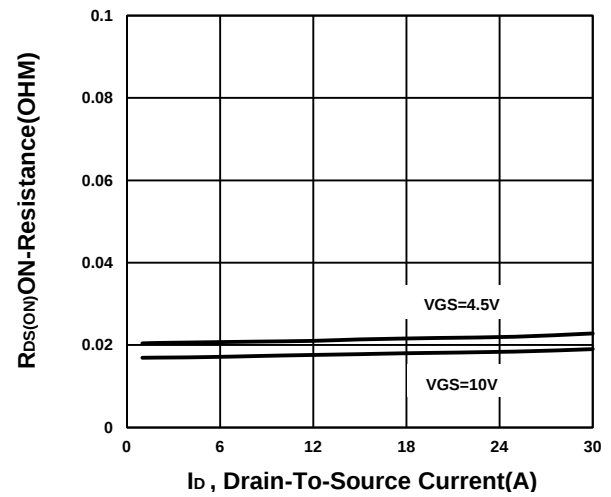
Transfer Characteristics



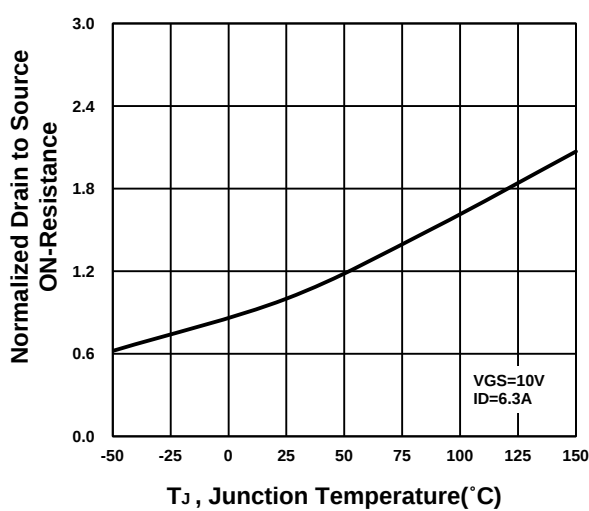
On-Resistance VS Gate-To-Source Voltage



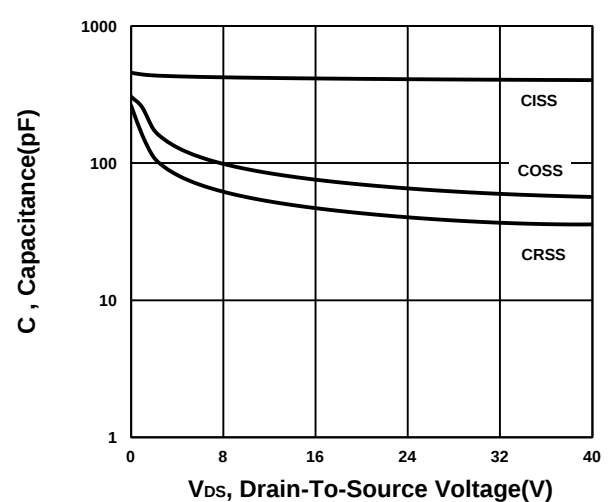
On-Resistance VS Drain Current



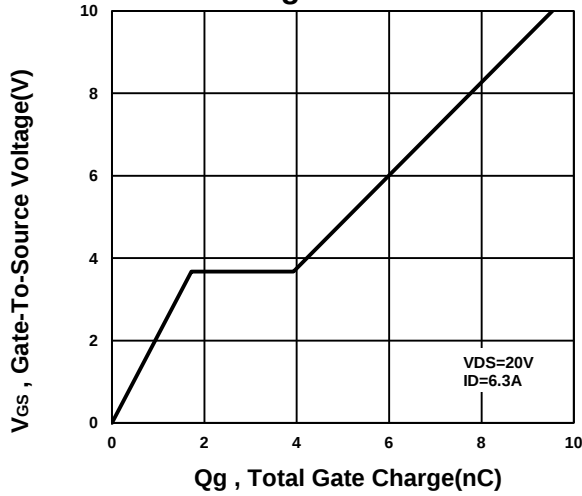
On-Resistance VS Temperature



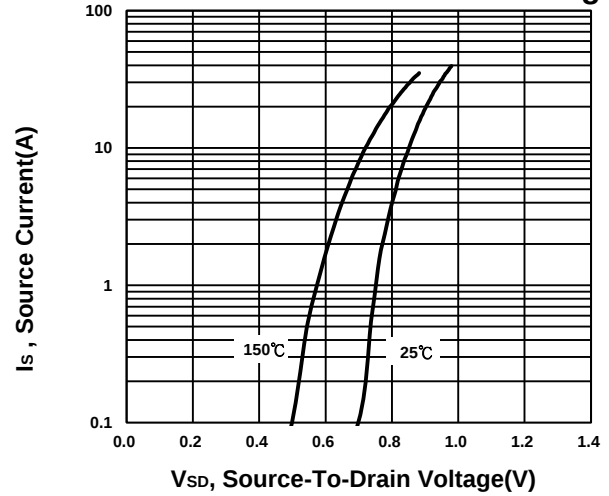
Capacitance Characteristic



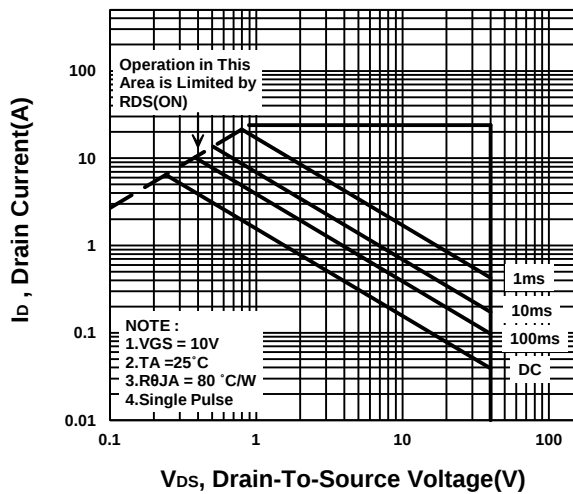
Gate charge Characteristics



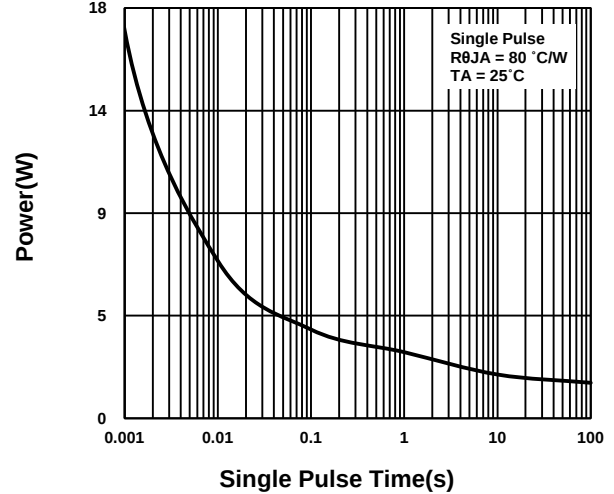
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

